09-11-06

IFW

Attorney's Docket No.: 19049-005001/4905

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Nguyen et al.	Art Unit	: 1639
Serial No.	: 10/677,977	Examiner	: Teresa D. Wessendorf
Filed	: October 2, 2003	Conf. No.	: 9061
Cust. No	: 20985		
Title	: METHODS OF GENERATING AND SCREENING FOR PROTEASES WITH ALTERED SPECIFICITY FOR SELECTED TARGETS		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL LETTER

Dear Sir:

Transmitted herewith are an Information Disclosure Statement (3 pages), Form PTO-1449 (4 pages) and non-U.S. patent cited references, and a return postcard for filing in connection with the above-identified application. Because this Information Disclosure Statement is filed prior to receipt of a first office action on the merits in the above-referenced application, no fee is due. However, should it be determined that a fee for filing these papers is required, the Commissioner is authorized to charge Deposit Account No. 06-1050, as stated below:

☒ The Commissioner is hereby authorized to charge any fees that may be due in connection with this paper or with this application during its entire pendency to Deposit Account No. 06-1050. A duplicate of this sheet is enclosed.

Respectfully submitted,

Stephanie Seidman
Reg. No. 33,779

Attorney Docket No. 19049-005001/4905
Address all correspondence to:
Stephanie Seidman
Fish & Richardson P.C.
12390 El Camino Real
San Diego, California 92130
Telephone: (858) 678-4777
Facsimile: (202) 626-7796
email: seidman@fr.com

CERTIFICATE OF MAILING BY "EXPRESS MAIL"
"Express Mail" Mailing Label Number **EV 740126184 US**
Date of Deposit **September 7, 2006**
I hereby certify that this paper is being deposited with the United States Postal "Express Mail Post Office to Addressee" Service under 37 CFR §1.10 on the date indicated above and is addressed to: Commissioner for Patents, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA, 22313-1450.

Stephanie Seidman

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Nguyen et al.	Art Unit	: 1639
Serial No.	: 10/677,977	Examiner	: Teresa D. Wessendorf
Filed	: October 2, 2003	Conf. No.	: 9061
Cust. No.	: 20985		
Title	: METHODS OF GENERATING AND SCREENING FOR PROTEASES WITH ALTERED SPECIFICITY FOR SELECTED TARGETS		

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT IN ACCORDANCE WITH 37 C.F.R. §§ 1.97-1.98

Because this Information Disclosure Statement is filed before the receipt of a First Office Action on the Merits for the above-captioned application, a fee for filing this statement should not be due. If, however, it is determined that a fee is due, any fees that may be due in connection with filing this paper may be charged to Deposit Account No. 06-1050.

In accordance with the duty of disclosure imposed by 37 C.F.R. §1.56 to inform the Patent Office of all information known by Applicant or Applicant's representative that may be material to the examination of the subject application, Applicant's representative hereby provides this Information Disclosure Statement that is prepared in accordance with 37 C.F.R. §§1.97-1.98. Forms PTO-1449 (4 pages) and copies of the cited non U.S. Patent documents are provided herewith.

The documents cited on the Forms PTO-1449 are in the English language. Hence, in accordance with the requirements of 37 C.F.R. §1.98, as amended effective March 16, 1992, no further explanation of the listed items is necessary.

CERTIFICATE OF MAILING BY "EXPRESS MAIL"
"Express Mail" Mailing Label Number **EV 740126184 US**
Date of Deposit **September 7, 2006**
I hereby certify that this paper is being deposited with the United States Postal "Express Mail Post Office to Addressee" Service under 37 CFR §1.10 on the date indicated above and is addressed to: Commissioner for Patents, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA, 22313-1450.

Stephanie Seidman

Applicant also makes known to the Examiner the following pending U.S., International and National Phase Applications that have one or more common inventors and/or are commonly owned:

U.S.S.N.(App. No.)	Filing Date	Docket No.
10/686,884	10/15/03	18062G-003211IS
10/989,590	11/15/04	02307E-142110US
11/104,110	04/12/05	19049-012001
11/104,111	04/12/05	19049-011001
11/149,513	06/10/05	19049-004001

Int'l Appln. No.	Filing Date	Docket No.
PCT/US2003/031719	12/02/03	19049-005WO1
PCT/US2005/012243	01/12/05	19049-011WO1
PCT/US2005/012488	04/12/05	19049-012WO1
PCT/US2005/020516	06/10/05	19049-004WO1

Although these documents are made known to the Patent and Trademark Office in compliance with Applicant's duty of disclosure, such disclosure is not to be construed as an admission by Applicant or Applicant's representative that any of the information, singly or in any combination thereof, is effective as prior art against the subject application. In accordance with 37 C.F.R. §1.97(g) and (h), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 C.F.R. §1.56(b) exists.

Applicant also makes known to the Office the inadvertent use of past tense in Examples relating to tumor necrosis factor and tumor necrosis factor receptor (page 45, lines 4-21, and page 49, lines 7-28). An amendment to change the language to present tense will be filed under separate cover with the Response to the Office Action mailed April 11, 2006.

Applicant respectfully requests that the Examiner review the foregoing documents and they be made of record in the file history of the above-captioned application.

Respectfully submitted,

Stephanie Seidman
Reg. No. 33,779

Attorney Docket No. 19049-005001/4905
Address all correspondence to:
Stephanie L. Seidman
Fish & Richardson P.C.
12390 El Camino Real
San Diego, California 92130
Telephone: (858) 678-5070
Facsimile: (202) 626-7796
email: seidman@fr.com

10656365.doc

Substitute Form PTO-1449 (Modified)

U.S. Department of Commerce
Patent and Trademark Office

List of Patents and Publications for Applicant's Information Disclosure Statement

(37 CFR §1.98(b))

Attorney's Docket No.	Application No.
19049-005001/4905	10/677,977
Applicant: Nguyen et al.	
Filing Date: October 2, 2003	Group Art Unit: 1639

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	AA	2002/0034776	03/21/02	Bornscheuer et al.	435	471	09/28/98
	AB	2002/022243	02/21/02	Harris et al.	435	23	05/25/01
	AC	2003/0199038	10/23/03	Brody et al.	435	8	04/22/03
	AD	2003/0068792	04/10/03	Chen et al.	485	183	12/13/01
	AE	2003/0049689	03/13/03	Edwards et al.	435	7.1	06/12/02
	AF	2004/0072276	04/15/04	Koltermann et al.	435	23	05/09/03
	AG	2004/0081648	04/29/04	Afeyan et al.	435	183	08/27/03
	AH	2004/0115727	06/17/04	Steward et al.	435	69.3	12/11/02
	AI	2004/0175777	09/09/04	Harris et al.	435	23	10/15/03
	AJ	2004/0203107	10/14/04	Murray et al.	435	69.1	05/07/04
	AK	2005/0002897	01/06/05	Haupts et al.	424	85.1	06/18/04
	AL	2005/0059126	03/17/05	Haupts et al.	435	183	06/18/04
	AM	2005/0175581	08/11/05	Haupts et al.	435	85.1	12/22/04
	AN	2006/0099625	05/11/06	Craik et al.	536	23.1	10/18/05
	AO	2006/0104979	05/18/06	Craik et al.	536	23.1	10/18/05
	AP	2006/0134086	06/22/06	Chen et al.	424	94.1	06/30/04
	AQ	5223409	06/29/93	Ladner et al.	435	69.7	03/01/91
	AR	6165794	12/26/00	Craik et al.	435	455	11/10/94
	AS	6319713	11/20/01	Patten et al.	435	440	06/25/99
	AT	6534310	03/18/03	Craik et al.	435	325	06/01/00
	AU	6680178	01/20/04	Harris et al.	435	23	05/25/01
	AV	6797461	09/28/04	Niles et al.	435	4	09/19/01
	AW	7030231	04/18/06	Craik et al.	536	23.1	09/30/99

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation Yes	Translation No
	AX	1361284	11/12/03	EP				
	AY	2004/113522	12/29/04	PCT				
	AZ	92/06204	04/16/92	PCT				
	BA	01/57194	08/09/01	PCT				

Examiner Signature	Date Considered

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 19049-005001/4905	Application No. 10/677,977
List of Patents and Publications for Applicant's Information Disclosure Statement (37 CFR §1.98(b))		Applicant Nguyen et al.	
		Filing Date October 2, 2003	Group Art Unit 1639

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation Yes	Translation No
	BB	01/94332	12/13/01	PCT			X	
	BC	02/34795	05/02/02	PCT			X	
	BD	03/095670	11/20/03	PCT			X	
	BE	04/113521	12/29/04	PCT			X	
	BF	06/067198	06/29/06	PCT			X	

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	BG	Ballinger, M.D., et al. "Furilisin: a variant of subtilisin BPN' engineered for cleaving tribasic substrates," Biochemistry, 35(42):13579-85, (1996).
	BH	Backes, B.J., et al. "Synthesis of positional-scanning libraries of fluorogenic peptide substrates to define the extended substrate specificity of plasmin and thrombin," Nat Biotechnol. 18(2):187-93, (2000).
	BI	Berg, D.T., et al. "Engineering the proteolytic specificity of activated protein C improves its pharmacological properties," Proc Natl Acad Sci U S A 100(8): 4423-4428, (2003).
	BJ	Bone R., et al., "Structural basis for broad specificity in alpha-lytic protease mutants," Biochemistry. 30(43):10388-98, (1991).
	BK	Bowie, J.U. and R.T. Sauer. "Identifying determinants of folding and activity for a protein of unknown Structure," Proc Natl Acad Sci U S A. 86(7):2152-6, (1989).
	BL	Corey D.R., et al., "Trypsin display on the surface of bacteriophage," Gene 128(1):129-34, (1993).
	BM	Cory S.A., "Fascinating death factor," Nature 367(6461):317-8, (1994).
	BN	Craik, C.S., et al., "Redesigning Trypsin: Alteration of Substrate Specificity, Catalytic Activity and Protein Conformation," Science, 228(4697):291-297. (1987).
	BO	Craik C.S., "Inhibitors for epithelial cancer associated proteases - structure based design," NIH Grant No. CA072006, (1997-2002).
	BP	Darzynkiewicz, Z., et al., "Features of apoptotic cells measured by flow cytometry," Cytometry, 13(8):795-808, (1992).
	BQ	Derbyshire, K.M., et al., "A simple and efficient procedure for saturation mutagenesis using mixed oligodeoxynucleotides," Gene, 46(2-3):145-52, (1986).
	BR	Dynan, W.S. and Tjian R. "Control of eukaryotic messenger RNA synthesis by sequence-specific DNA-binding proteins," Nature 316(6031):774-8, (1985).
	BS	Friedrich, R., et al., "Catalytic domain structures of MT-SP1/matriptase, a matrix-degrading transmembrane serine proteinase," J Biol Chem., 277(3):2160-8, (2002).
	BT	Gill, S.C. and P.H. von Hippel, "Calculation of protein extinction coefficients from amino acid sequence data," Anal Biochem., 182(2):319-26, (1989). Erratum in: Anal Biochem., 189(2):283, (1990).
	BU	Gillmor, S.A., et al., "Structural Determinants of Specificity in the Cysteine Protease Cruzain," Protein Sci., 6:1603-1611, (1997).
	BV	Gorczyca, W., et al., "Detection of DNA strand breaks in individual apoptotic cells by the in situ terminal deoxynucleotidyl transferase and nick translation assays," Cancer Res., 53(8):1945-51, (1993).

Examiner Signature	Date Considered
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 19049-005001/4905	Application No. 10/677,977
List of Patents and Publications for Applicant's Information Disclosure Statement		Applicant Nguyen et al.	
(37 CFR §1.98(b))		Filing Date October 2, 2003	Group Art Unit 1639

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	BW	Gron, H., et al., "Extensive comparison of the substrate preferences of two subtilisins as determined with peptide substrates which are based on the principle of intramolecular quenching," Biochemistry, 31(26):6011-8, (1992).
	BX	Harris, J.L., et al., "Definition and redesign of the extended substrate specificity of granzyme B," J Biol Chem., 273(42):27364-73, (1998).
	BY	Harris, J.L., et al., "Engineering enzyme specificity," Curr Op Chem Biol., 2(1):127-132, (1998).
	BZ	Harris, J.L., et al., "Rapid and general profiling of protease specificity by using combinatorial fluorogenic substrate libraries," Proc Natl Acad Sci U S A., 97(14):7754-9, (2000).
	CA	He, G.P., et al., "A eukaryotic transcriptional represser with carboxypeptidase activity," Nature, 378:92-96, (1995).
	CB	Higaki J., et al., "Introduction of a Cysteine Protease Active Site into Trypsin," Biochem., 28:9256-9263, (1989).
	CC	Higaki J.N., et al., "Regulation of Serine Protease Activity by an Engineered Metal Switch," Biochem., 29:8582-8586, (1990).
	CD	Hopfner, K.P., et al., "Coagulation factor IXa: the relaxed conformation of Tyr99 blocks substrate binding," Structure, 7(8):989-96, (1999).
	CE	Jameson, G.W. et al., "Determination of the operational molarity of solutions of bovine alpha-chymotrypsin, trypsin, thrombin and factor Xa by spectrofluorimetric titration," Biochem J., 131(1):107-17, (1973).
	CF	Kraut J., "How do enzymes work?," Science, 242(4878):533-40, (1988).
	CG	Laboissiere M.C., et al., "Computer-assisted mutagenesis of ecotin to engineer its secondary binding site for urokinase inhibition," J Biol Chem., 277(29):26623-31, (2002).
	CH	Legendre, D., et al., "Display of active subtilisin 309 on phage: analysis of parameters influencing the selection of subtilisin variants with changed substrate specificity from libraries using phosphonylating inhibitors," J Mol Biol., 296(1):87-102, (2000).
	CI	Lowman, H.B., et al., "Selecting high-affinity binding proteins by monovalent phage display," Biochemistry, 30(45):10832-8. (1991).
	CJ	Maly, D.J., et al., "Expedient solid-phase synthesis of fluorogenic protease substrates using the 7-amino-4-carbamoylmethylcoumarin (ACC) fluorophore," J Org Chem., 67(3):910-5, (2002).
	CK	Matayoshi, E.D., et al., "Novel fluorogenic substrates for assaying retroviral proteases by resonance energy transfer," Science, 247(4945):954-8, (1990).
	CL	Mathieu, M.A., et al., "Substrate specificity of schistosome versus human legumain determined by P1-P3 peptide libraries," Mol Biochem Parasitol., 121(1):99-105, (2002).
	CM	Meldal, M. and K. Breddam., "Anthranilamide and nitrotyrosine as a donor-acceptor pair in internally quenched fluorescent substrates for endopeptidases: multicolumn peptide synthesis of enzyme substrates for subtilisin Carlsberg and pepsin," Anal Biochem., 195(1):141-7, (1991).
	CN	Miyazaki, K. and F.H. Arnold., "Exploring nonnatural evolutionary pathways by saturation mutagenesis: rapid improvement of protein function," J Mol Evol., 49(6):716-20, (1999).
	CO	Needleman, S.B. and C.D. Wunsch., "A general method applicable to the search for similarities in the amino acid sequence of two proteins," J Mol Biol., 48(3):443-53, (1970).
	CP	Ner, S.S., et al., "A simple and efficient procedure for generating random point mutations and for codon replacements using mixed oligodeoxynucleotides," DNA, 7(2):127–134, (1988).
	CQ	Nicholson, D.W., et al., "Identification and inhibition of the ICE/CED-3 protease necessary for mammalian apoptosis," Nature, 376(6535):37 - 43 , (2002).
	CR	Ostresh, J.M., et al., "Peptide libraries: determination of relative reaction rates of protected amino acids in competitive couplings," Biopolymers, 34(12):1681-9, (1994).

Examiner Signature	Date Considered
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Substitute Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 19049-005001/4905	Application No. 10/677,977
List of Patents and Publications for Applicant's Information Disclosure Statement		Applicant Nguyen et al.	
(37 CFR §1.98(b))		Filing Date October 2, 2003	Group Art Unit 1639

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	CS	Perona, J.J., et al., "Relocating a negative charge in the binding pocket of trypsin," J Mol Biol., 230(3):934-49, (1993).
	CT	Perona, J.J., et al., "Structural basis of substrate specificity in the serine proteases," Protein Science, 4(3):337-360, (1995).
	CU	Perona J.J., et al., "Evolutionary divergence of substrate specificity within the chymotrypsin-like serine protease fold," J. Biol. Chem., 272(48):29987-29990, (1997).
	CV	Porteu, M., et al., "Human neutrophil elastase releases a ligand-binding fragment from the 75-kDa tumor necrosis factor (TNF) receptor. Comparison with the proteolytic activity responsible for shedding of TNF receptors from stimulated neutrophils," J. Biol. Chem., 266(28):18846-18853, (1991).
	CW	Reidhaar-Olson, J.F. and R.T. Sauer, "Combinatorial cassette mutagenesis as a probe of the informational content of protein sequences, " Science, 241(4861):53-7, (1988).
	CX	Sidhu, S.S., et al., "Phage display for selection of novel binding peptides," Methods Enzymol., 328:333-63, (2000).
	CY	Sprang, S., et al., "The three-dimensional structure of Asn102 mutant of trypsin: role of Asp102 in serine protease catalysis," Science, 237(4817):905-9, (1987).
	CZ	Stubbs, M.T., et al., "Coagulation factors and their inhibitors," Curr Op Chem Biol., 4(6):823-832, (1994).
	DA	van Kessel, K.P., et al., "Inactivation of recombinant human tumor necrosis factor-alpha by proteolytic enzymes released from stimulated human neutrophils," J Immunol., 147(11):3862-8, (1991).
	DB	Wang, S.X., et al., "Crystal structure of thrombin-ecotin reveals conformational changes and extended interactions," Biochemistry, 40(34):10038-46, (2001).
	DC	Waugh, S.M., et al., "The structure of the pro-apoptotic protease granzyme B reveals the molecular determinants of its specificity," Nat Struct Biol., (9):762-5, (2000).
	DD	Wells, J.A., et al., "On the evolution of specificity and catalysis in subtilisin," Cold Spring Harb Symp Quant Biol., 52:647-52, (1987).

Examiner Signature	Date Considered
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	